YEFREMOV, G.D., dots.

Value of the coefficient of rock hardness from the Volyn coal deposit. Ugol' Ukr. 3 no.8:16-18 Ag '59. (MIRA 12:12)

1.Kiyevskiy politekhnicheskiy institut.
(Lvov-Volyn Basin--Coal)

YEFREMOV, G.D., kand.tekn.nauk

Shaft equipment during the reorganization of deep Donets Basin mines. Ugol' Ukr. no.6:8-10 Je '60. (MIRA 13:7)

1. Kiyevskiy politekhnicheskiy institut.
(Donets Basin--Coal mines and mining)
(Shaft sinking)

KHARCHENKO, M.I.; YEFREMOV, G.D., kand.tekhn.nauk

Development and timbering of deep mines in the Donets Basin.
Ugol' Ukr. 5 no.4:8-9 Ap '61. (MIRA 14:4)

1. Glavnyy inzh.tresta Makeyevshakhtostroy (for Kharchenko).
(Donets Basin—Coal mines and mining)

YEFREMOV, Georgiy Dmitriyevich; KOCHERGA, N.T., red.; KRIVORUCHKO, P., tekhn. red.

[Working coal seams at great depths] Razrabotka ugol'nykh plastov na bol'shikh glubinakh. Kiev, Gostekhizdat USSR, 1962. 143 p. (MIRA 16:3)

(Coal mines and mining)

TIKHONOV, Mikhail Yegorovich, kand. tekhn. nauk; YEFREMOV, G.D., kand. tekhn. nauk, retsenzent; KOCHERGA, N.T., inzh., red.izd-va; SHAFETA, S.M., tekhn. red.

[Means of controlling roofs]Sposoby upravleniia krovlei. Kiev, Gostekhizdat USSR, 1962. 150 p. (MIRA 16:3)
(Mine timbering)

YEFREMOV, G.D., kand. tekhn. nauk

Hypothesis of sudden rock outbursts in deep mine workings.
Ugol' Ukr. 10 no. 1:48-50 Ja '66. (MIRA 18:12)

1. Kiyevskiy politekhnicheskiy institut.

TROFIMOV, Vladimir Petrovich; YEFREMOV, G.D., kand. tekhn. nauk, retsenzent; AFONINA, G.P.[Afonina, H.P.], red. izd-va; STARODUB, T.O., tekhn. red.; SHAFETA, S.M., tekhn. red.

[Ways of developing the coal industry of the Ukrainian S.S.R.] Shliakhi rozvytku vuhil'noi promyslovosti URSR. Kyiv, Derzh. vyd-vo tekhn. lit-ry URSR, 1963. 110 p. (MIRA 16:3)
(Ukraine--Coal mines and mining)

YEFREMOV, G. D., kand. tekhn. nauk

Injection and suction ventilation of deep mines. Ugol' Ukr. 7 no.4:10-13 Ap '63. (MIRA 16:4)

1. Kiyevskiy politekhnicheskiy institut.

(Donets Basin--Mine ventilation)

ORLENKO, L.P.; YEFREMOV, G.F.

Shock waves in metals. Izv. vys. ucheb. zav.; fiz. no.4:72-75 '64 (MIRA 17:8)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni Baumana.

L 08170-67 EWT(1) IJP(c) GG

ACC NR: AP6024875 SOURCE CODE: UR/0056/66/051/001/0156/0164

AUTHOR: Yefremov, G. F.

ORG: Radiophysics Institute of the Gor'kiy State University (Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta)

TITLE: Symmetry relations for the cross susceptibility tensor

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 1, 1966, 156-164

TOPIC TAGS: susceptibility tensor, quantum theory, perturbation theory, nonlinear effect, correlation function

ABSTRACT: Some general properties of the cross susceptibility, with account of spatial dispersion, are considered on the basis of the spectral representation, for a close quantum-mechanical system acted upon by an external field. The motion of th system under the action of the field is described by a density matrix, the equation for which is solved by time-dependent perturbation theory. Symmetry relations that are generalizations of the Onsager reciprocity relations for the linear susceptibility are derived from the invariance of the equations of motion with respect to time reversal. The connection between the nonlinear response and the fluctuations of quantities corresponding to the dynamical variables in the unperturbed system is established in general form. The cross susceptibility of the system characterizes the nonlinear response to a monochromatic field. Some of the general properties which follow from the definition of the cross susceptibility and its spectral representation and which are independent of

Card 1/2

L 08170-67

ACC NR: AP6024875

the specific form of the Hamiltonian of the system are given. The connection between the nonlinear response of the system to an external perturbation and the fluctuation of three quantitities in a state of thermodynamic equilibrium is established, in analogy with the relation between the linear susceptibility and the fluctuations in an unperturbed system (the Callen-Welton theorem or the fluctuation-dissipation theorem). It is also noted that the fluctuations in a system in the presence of external fields can also be expressed in terms of the correlation functions derived during the course of the analysis. The author thanks V. M. Fayn for a discussion of the problems treated in this work and for very valuable remarks. Orig. art. has: 37 formulas.

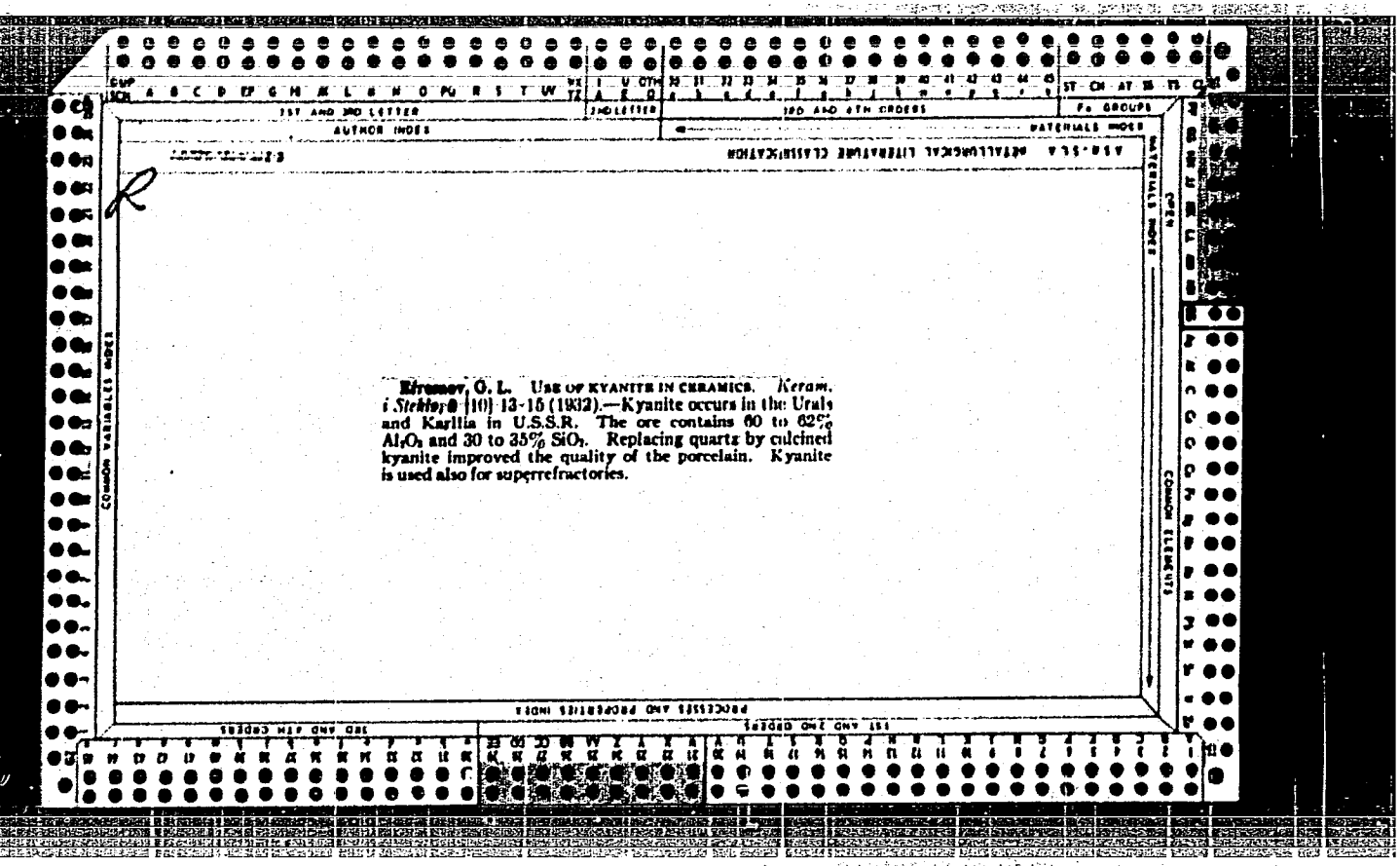
SUB CODE: 20/ SUBM DATE: 21Dec65/ ORIG REF: 008/ OTH REF: 009

Card 2/2 nst

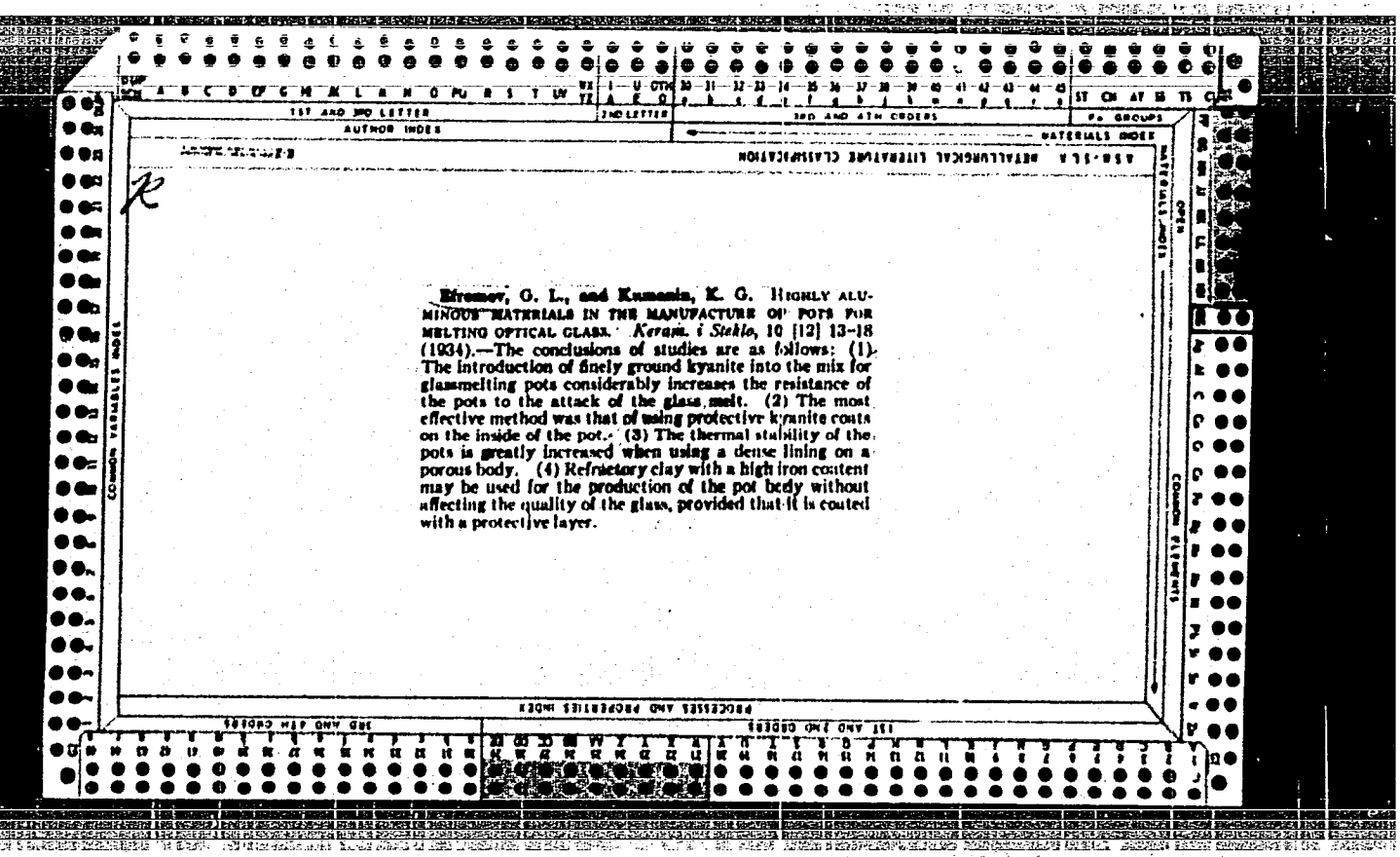
GLAVATSKIY, S.M.; YEFREMOV, G.K.

Eruption of Sarychev Peak in November, 1946. Biul.Vulk.sta. no.15: 8-12 '48. (MLRA 9:11)

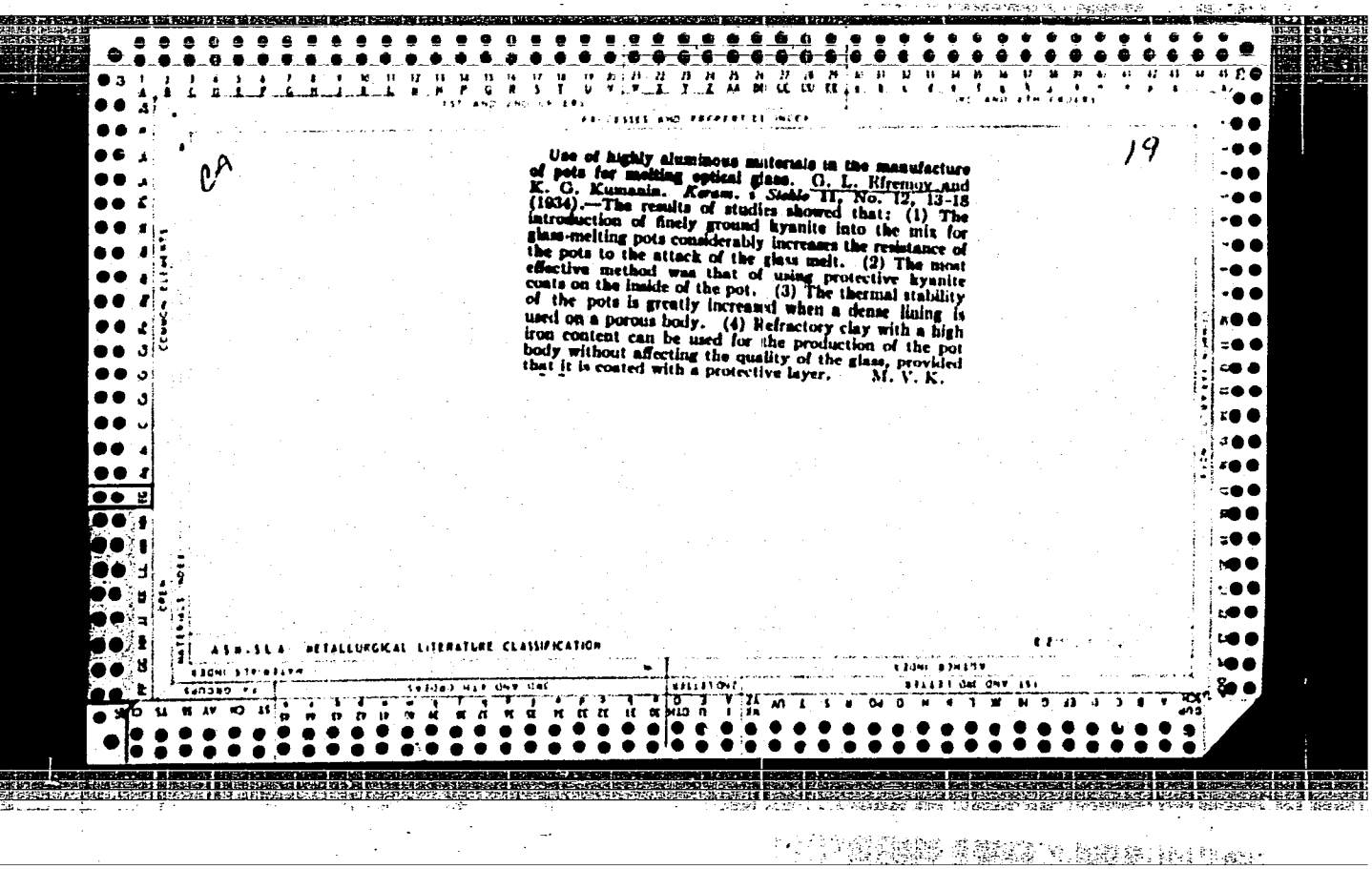
(Sarychev Peak)



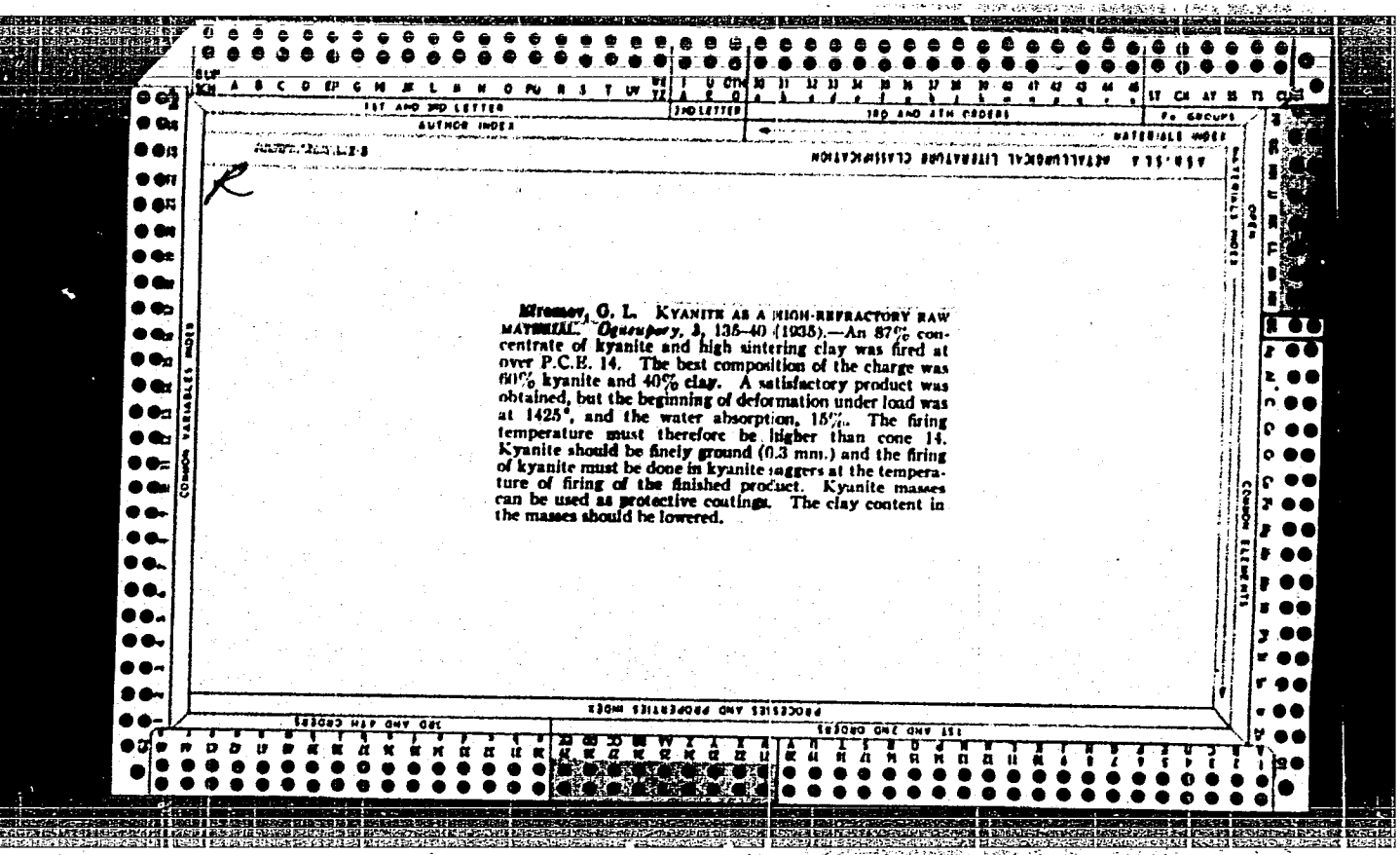
Ettmayer, O. L. USE OF KYANITE IN CERAMICS. *Keram. i Steklo* 9 [10] 13-15 (1932).—Kyanite occurs in the Urals and Karlia in U.S.S.R. The ore contains 60 to 62% Al_2O_3 and 30 to 35% SiO_2. Replacing quartz by calcined kyanite improved the quality of the porcelain. Kyanite is used also for superrefractories.



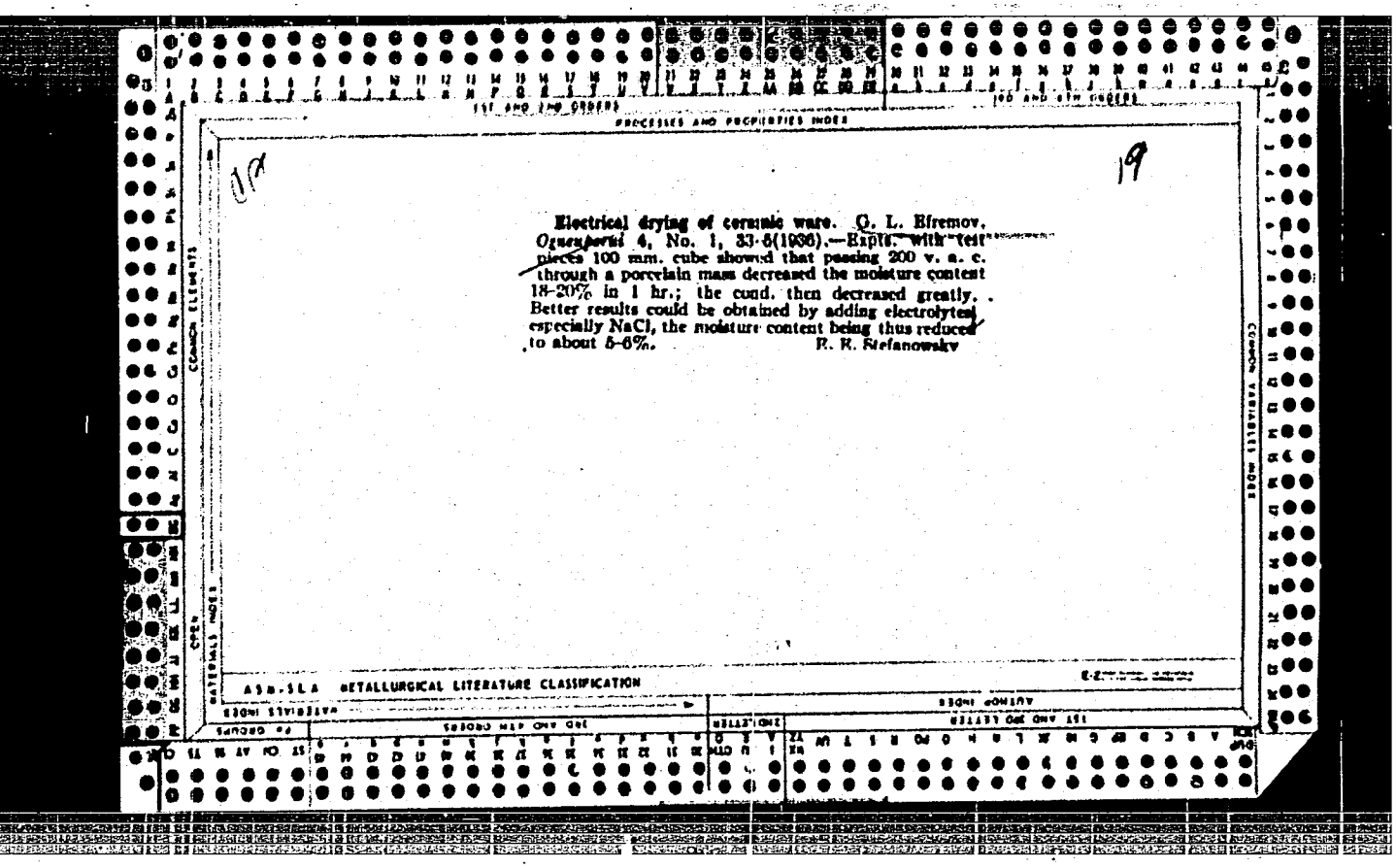
Efremov, G. L., and Kumanin, K. G. HIGHLY ALUMINOUS MATERIALS IN THE MANUFACTURE OF POTS FOR MELTING OPTICAL GLASS. *Keram. i Steklo*, 10 [12] 13–18 (1934).—The conclusions of studies are as follows: (1) The introduction of finely ground kyanite into the mix for glassmelting pots considerably increases the resistance of the pots to the attack of the glass melt. (2) The most effective method was that of using protective kyanite coats on the inside of the pot. (3) The thermal stability of the pots is greatly increased when using a dense lining on a porous body. (4) Refractory clay with a high iron content may be used for the production of the pot body without affecting the quality of the glass, provided that it is coated with a protective layer.



Use of highly aluminous materials in the manufacture of pots for melting optical glass. O. L. Kfremov and K. G. Kumanin. *Keram. i Steklo* 11, No. 12, 13-18 (1934).—The results of studies showed that: (1) The introduction of finely ground kyanite into the mix for glass-melting pots considerably increases the resistance of the pots to the attack of the glass melt. (2) The most effective method was that of using protective kyanite coats on the inside of the pot. (3) The thermal stability of the pots is greatly increased when a dense lining is used on a porous body. (4) Refractory clay with a high iron content can be used for the production of the pot body without affecting the quality of the glass, provided that it is coated with a protective layer. M. V. K.



Mromey, G. L. KYANITE AS A HIGH-REFRACTORY RAW MATERIAL. *Ogneupory*, 3, 138–40 (1935).—An 87% concentrate of kyanite and high sintering clay was fired at over P.C.E. 14. The best composition of the charge was 60% kyanite and 40% clay. A satisfactory product was obtained, but the beginning of deformation under load was at 1425°, and the water absorption, 15%. The firing temperature must therefore be higher than cone 14. Kyanite should be finely ground (0.3 mm.) and the firing of kyanite must be done in kyanite saggers at the temperature of firing of the finished product. Kyanite masses can be used as protective coatings. The clay content in the masses should be lowered.

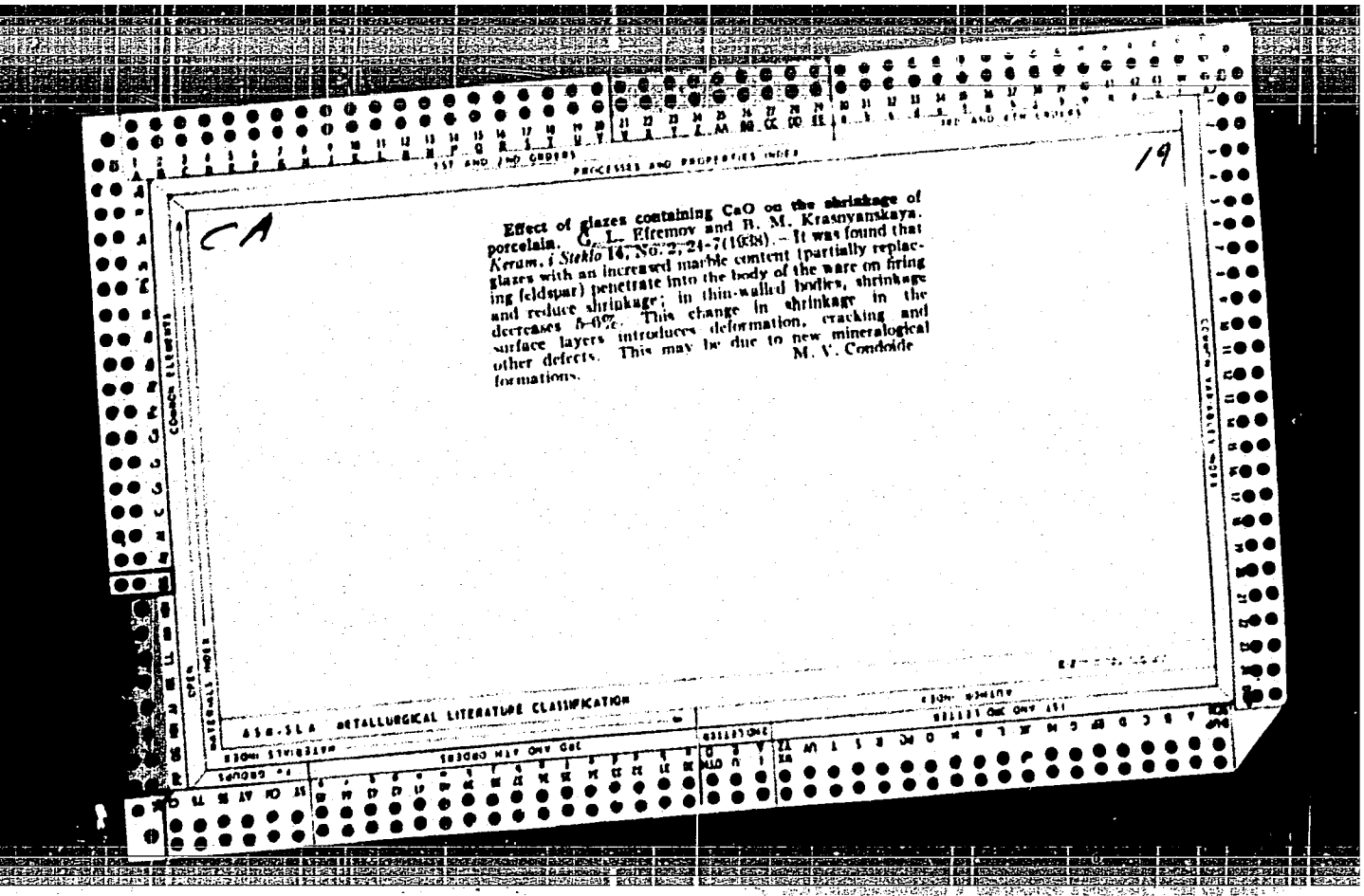


Electrical drying of ceramic ware. G. L. Efremov. *Ogneupory* 4, No. 1, 33-6(1936).—Expts. with test pieces 100 mm. cube showed that passing 200 v. a. c. through a porcelain mass decreased the moisture content 18-20% in 1 hr.; the cond. then decreased greatly. Better results could be obtained by adding electrolytes, especially NaCl, the moisture content being thus reduced to about 5-6%. R. R. Stefanowsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

EFREMOV, G. I.

Katz, L. I., and Efremov, G. I. KORUNDIZ, A NEW HIGH-GRADE CERAMIC MATERIAL. *Zavodskaya Lab.*, 5 [10] 1274-75 (1936).—The material is obtained by using alumina as the fundamental raw material transformed into corundum crystals. The ware is prepared by casting and firing to complete sintering in electrical and oil furnaces at about 1700°. The sintering is made possible by adding 1 to 2% of alkaline earth salts or other mineralizers facilitating the formation of crystals at lower temperatures. The material is used for preparing high-refractory crucibles, electric furnace tubes, and thermocouple tubes. It has a high resistance to alkalis.



CA

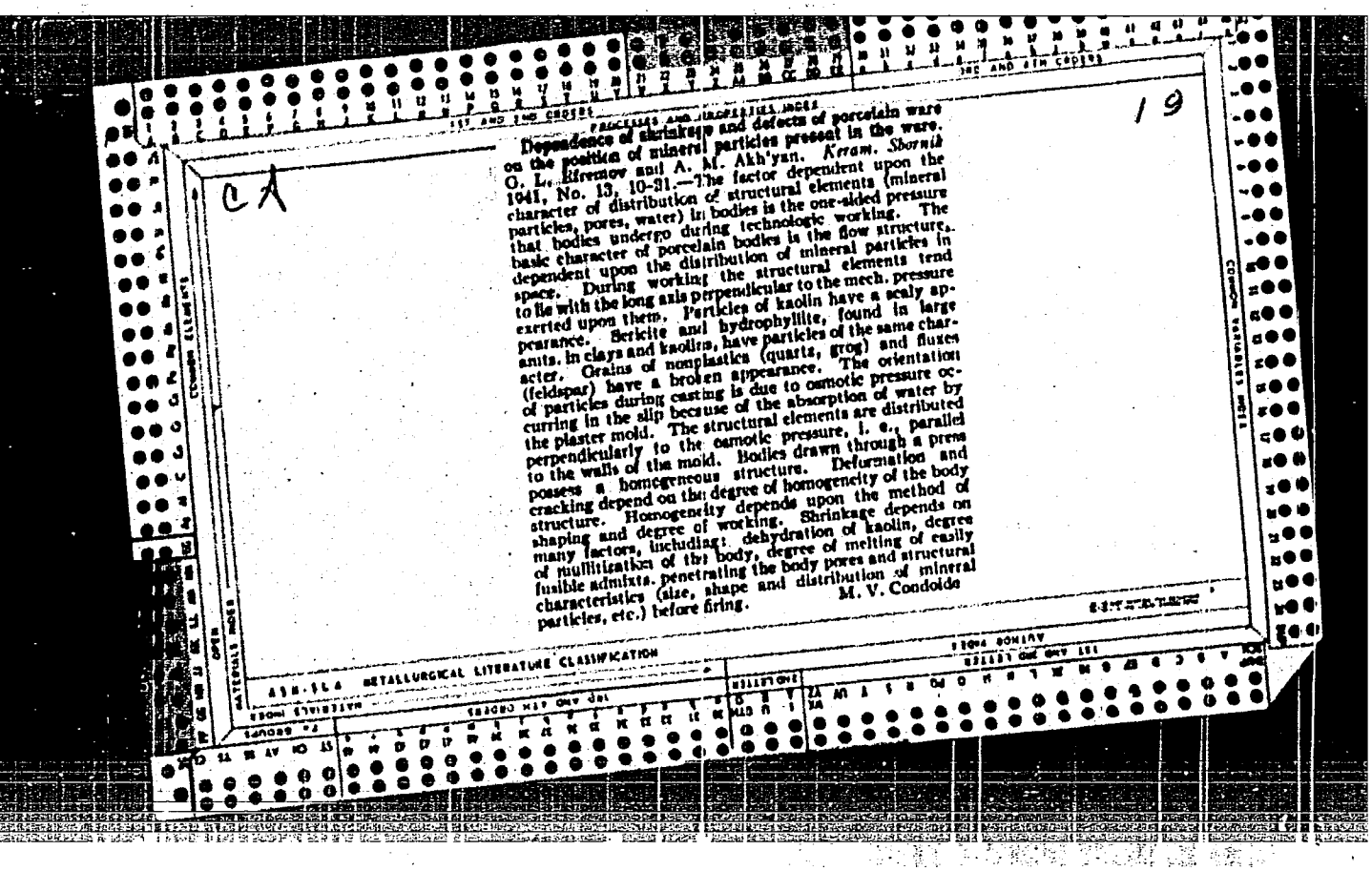
19

Effect of glazes containing CaO on the shrinkage of porcelain. G. L. Efremov and B. M. Krasnyanskaya. *Keram. i Steklo* 14, No. 2, 24-7(1938).—It was found that glazes with an increased marble content (partially replacing feldspar) penetrate into the body of the ware on firing and reduce shrinkage; in thin-walled bodies, shrinkage decreases 5–6%. This change in shrinkage in the surface layers introduces deformation, cracking and other defects. This may be due to new mineralogical formations. M. V. Condoide

A.C.S.

Terra Cotta

Production of architectural mosaic. G. L. Rubanov.
Prom. Stroitel. Materialov, 1941, No. 1, pp. 36-40; *Khim. Referat. Zhur.*, 4 [7-8] 93 (1941). M.Ho.



Dependence of shrinkage and defects of porcelain ware on the position of mineral particles present in the ware. O. L. Kifferov and A. M. Akh'yan. *Keram. Sbornik* 1941, No. 13, 10-21.—The factor dependent upon the character of distribution of structural elements (mineral particles, pores, water) in bodies is the one-sided pressure that bodies undergo during technologic working. The basic character of porcelain bodies is the flow structure, dependent upon the distribution of mineral particles in space. During working the structural elements tend to lie with the long axis perpendicular to the mech. pressure exerted upon them. Particles of kaolin have a scaly appearance. Berkite and hydrophyllite, found in large amts. in clays and kaolins, have particles of the same character. Grains of nonplastics (quartz, grog) and fluxes (feldspar) have a broken appearance. The orientation of particles during casting is due to osmotic pressure occurring in the slip because of the absorption of water by the plaster mold. The structural elements are distributed perpendicularly to the osmotic pressure, i. e., parallel to the walls of the mold. Bodies drawn through a press possess a homogeneous structure. Deformation and cracking depend on the degree of homogeneity of the body structure. Homogeneity depends upon the method of shaping and degree of working. Shrinkage depends on many factors, including: dehydration of kaolin, degree of vitrification of the body, degree of melting of easily fusible admixts. penetrating the body pores and structural characteristics (size, shape and distribution of mineral particles, etc.) before firing.

M. V. Condoide

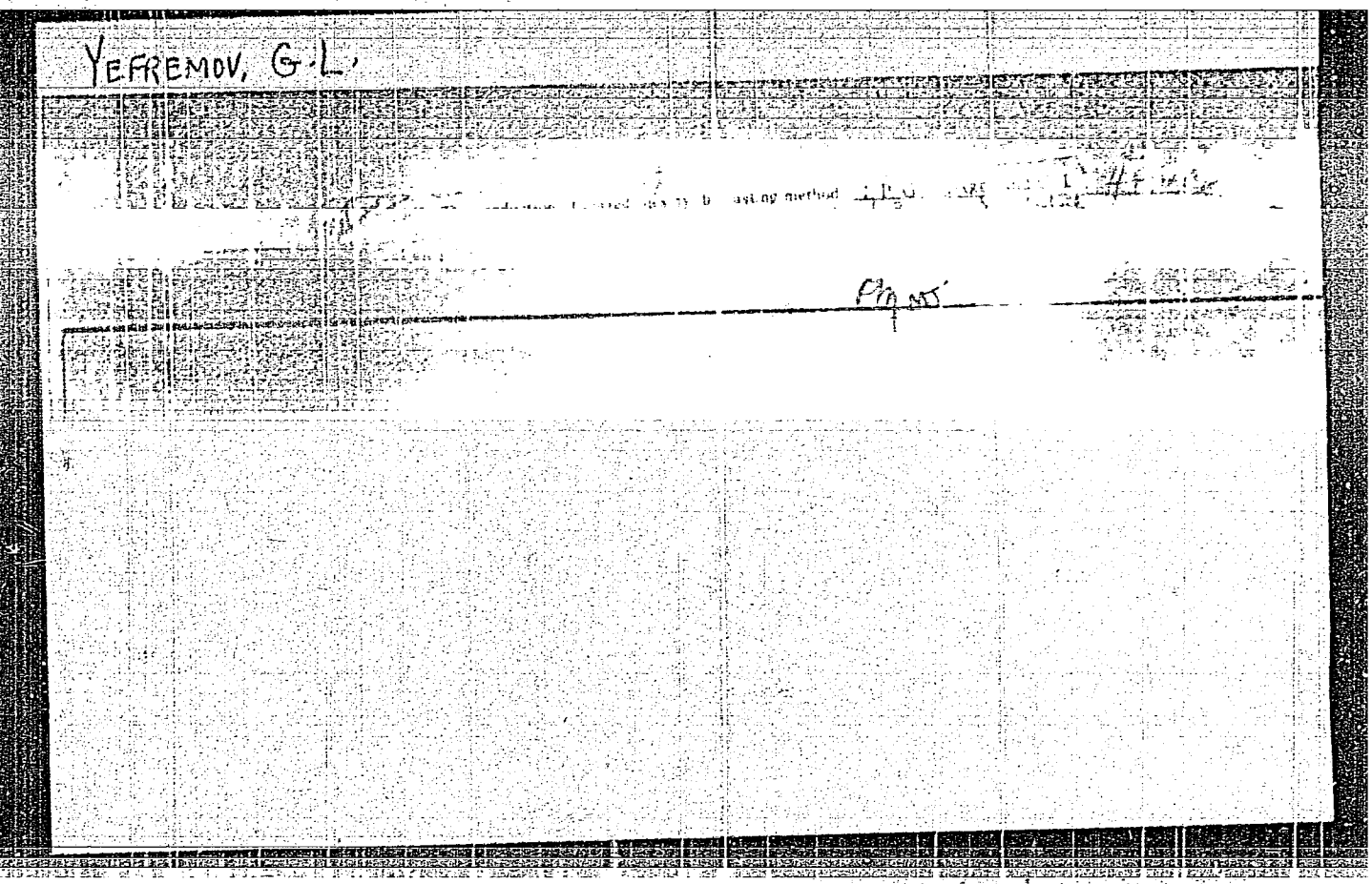
YEFREMOV, G.L.; KIRILLOVA, T.Ya.

Feldspar-free glaze with a short melting interval. Steklo i Keram. 9, No.1, 17-20 '52. (MLRA 4:12)
(CA 47 no.19:10193 '53)

YEFREMOV, G. L.

"The Influence of Air Inclusions, Form and Disposition of Clayey Particles on Shrinkage and Imperfections of Ceramic Products." Cand Tech Sci, Chair of Ceramic Production Technology, Leningrad Order of Labor Red Banner Technological Inst imeni Lensovet, Min Higher Education USSR, Leningrad, 1954. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55



YEFREMOV, G.I.

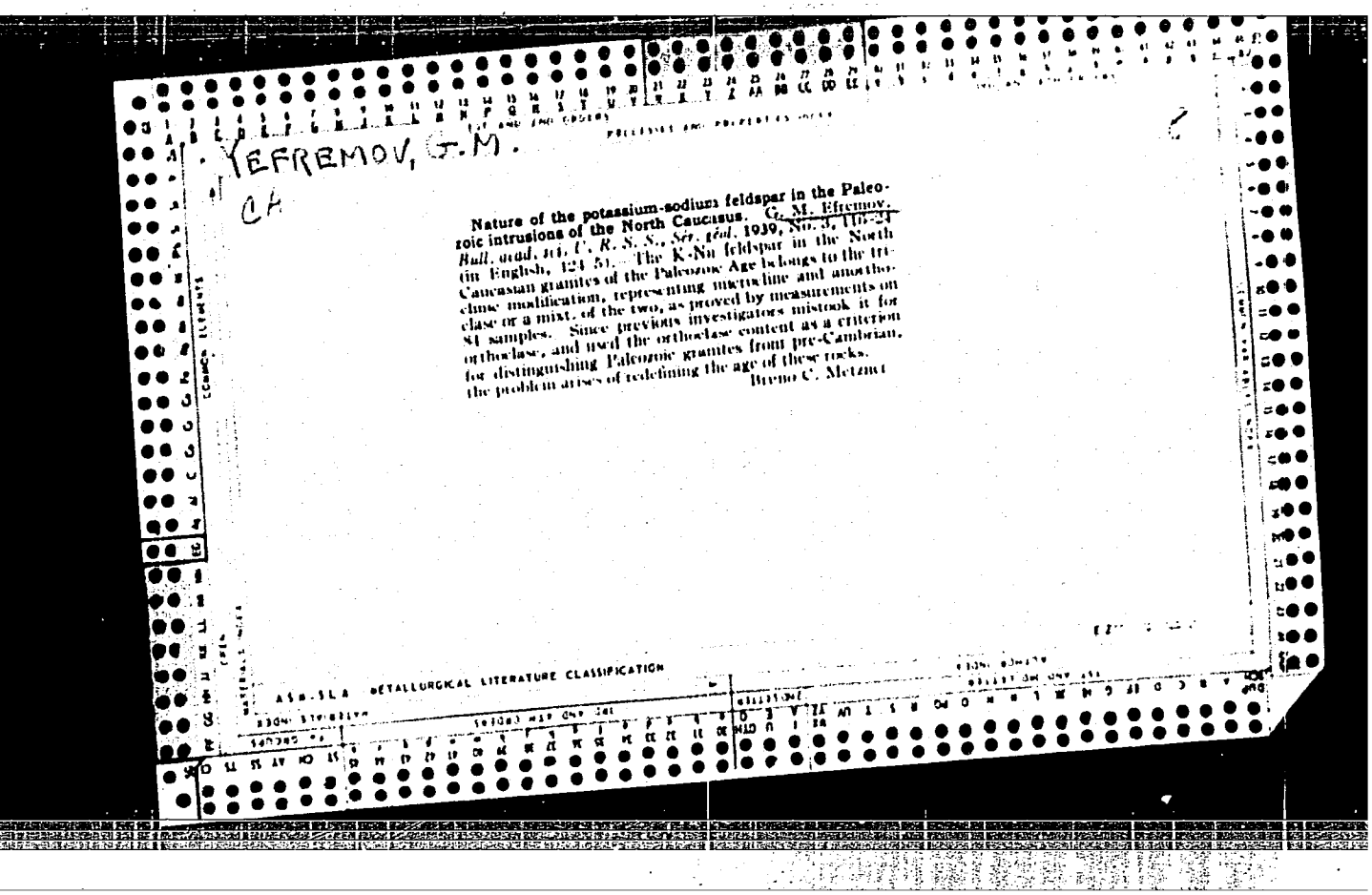
Porcelain manufacture. Stek.i ker. 13 no.11:28-30 N '56. (MIRA 10:1)

(China--Porcelain)

YEFREMOV, G. L.

15-2
1 #22

The influence of the form and arrangement of the clay particles on the shrinkage of clay ware. G. L. Efremov. *Steklo i Keram.* 14, No. 6, 14-17(1957).—Shrinkage of clay ware after the drying and firing operations is discussed as a function of grain geometry with respect to the [illegible] and orientation of the hexagonal lamellae of the clay substance, variables which govern the vol. of absorbed water. The more regularly the particles are oriented in the molding operation the greater the difference in linear and diametrical shrinkage. The effect of particle size is [illegible]

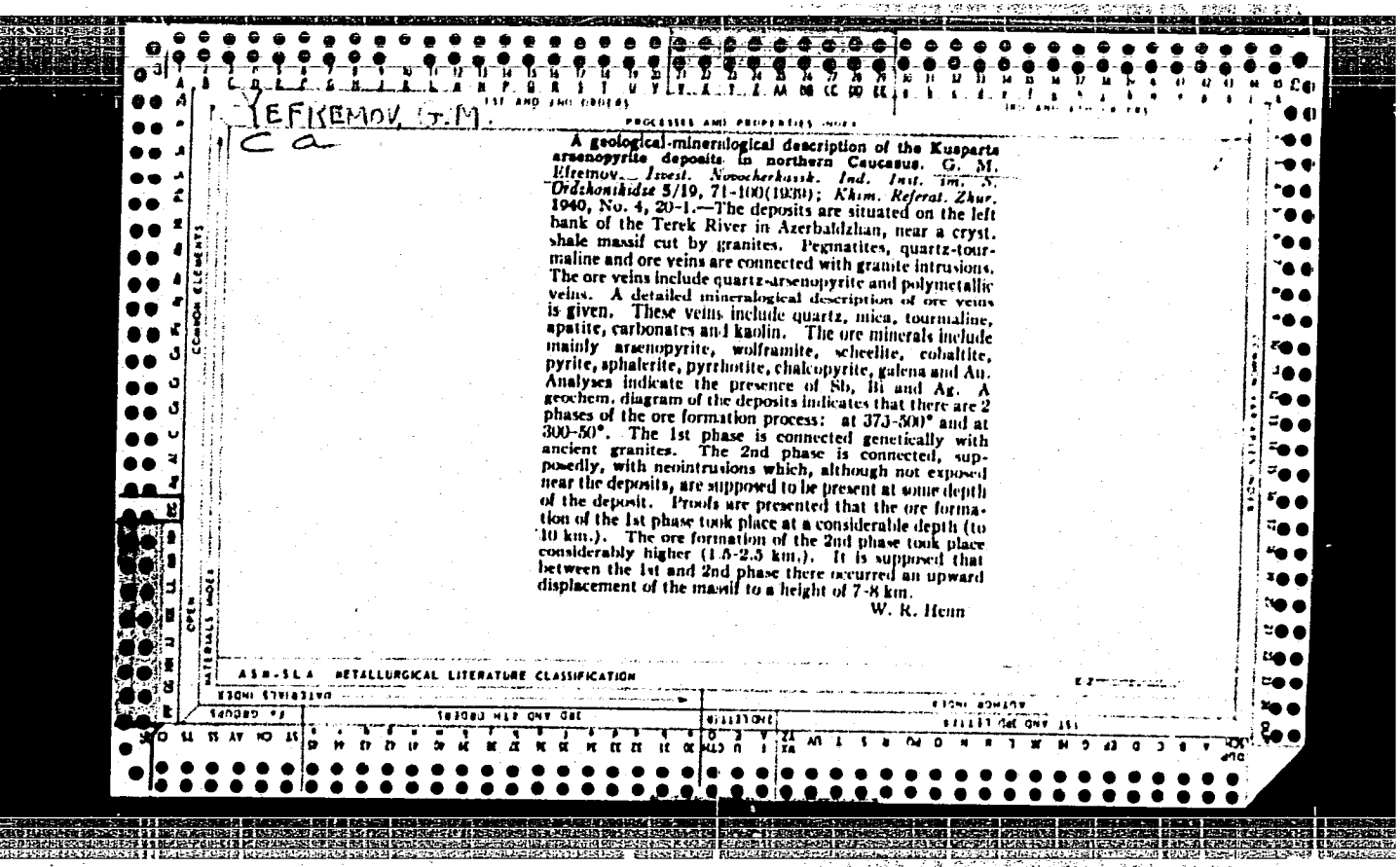


YEFREMOV, G.M.

CH

Nature of the potassium-sodium feldspar in the Paleozoic intrusions of the North Caucasus. G. M. Efremov. *Bull. acad. sci. U. R. S. S., Sér. géol.* 1939, No. 3, 119–34 (in English, 134–51). The K-Na feldspar in the North Caucasian granites of the Paleozoic Age is longs to the triclinic modification, representing microcline and anorthoclase or a mixt. of the two, as proved by measurements on 81 samples. Since previous investigators mistook it for orthoclase, and used the orthoclase content as a criterion for distinguishing Paleozoic granites from pre-Cambrian, the problem arises of redefining the age of these rocks.
Bruno C. Metzner

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

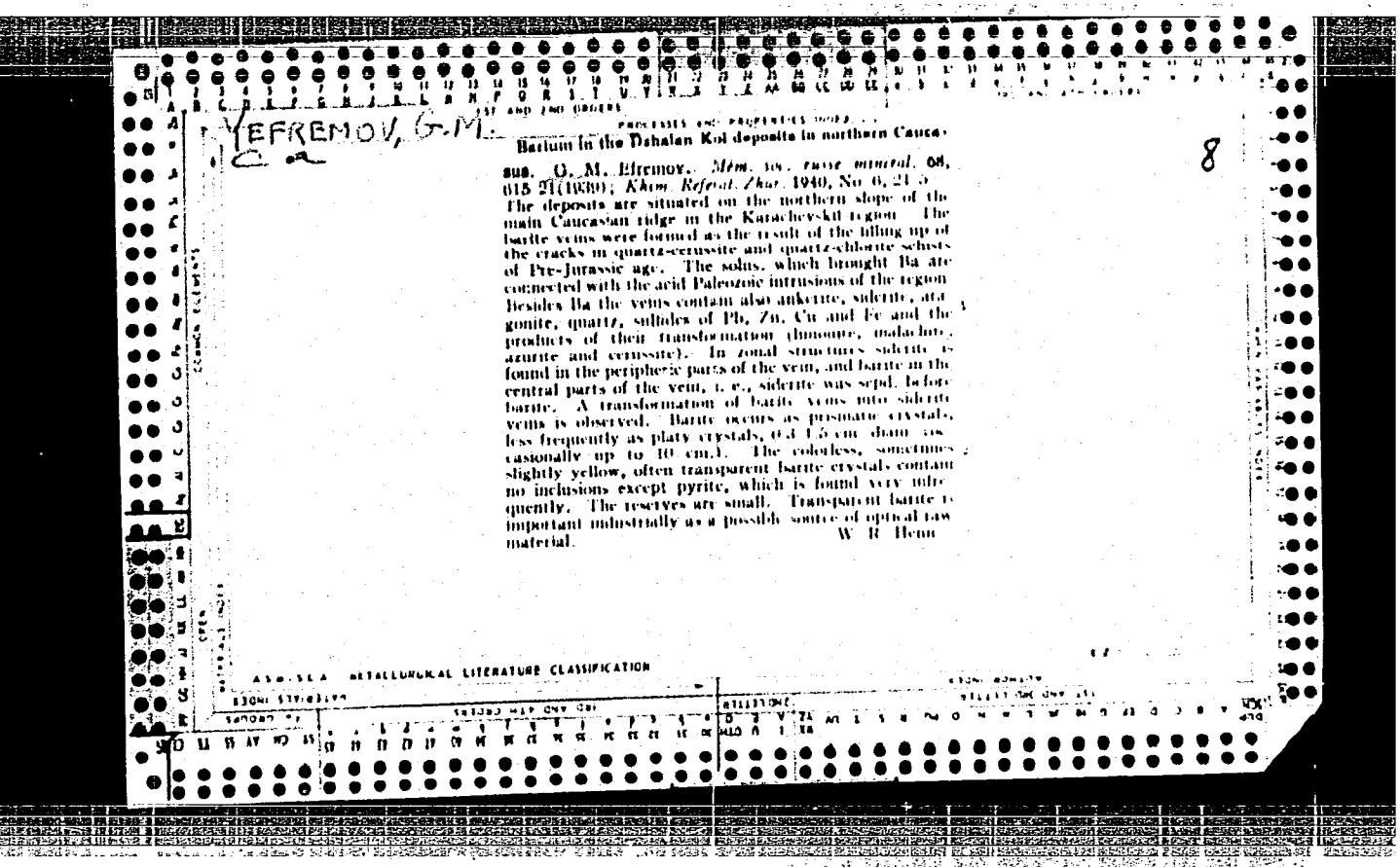


YEFREMOV, G.M.

Ca

A geological-mineralogical description of the Kusparta arsenopyrite deposits in northern Caucasus. G. M. Efremov. *Izvest. Novocherkassk. Ind. Inst. im. S. Ordzhonikidze* 5/19, 71-100(1939); *Khim. Referat. Zhur.* 1940, No. 4, 20-1.—The deposits are situated on the left bank of the Terek River in Azerbaidzhan, near a cryst. shale massif cut by granites. Pegmatites, quartz-tourmaline and ore veins are connected with granite intrusions. The ore veins include quartz-arsenopyrite and polymetallic veins. A detailed mineralogical description of ore veins is given. These veins include quartz, mica, tourmaline, apatite, carbonates and kaolin. The ore minerals include mainly arsenopyrite, wolframite, scheelite, cobaltite, pyrite, sphalerite, pyrrhotite, chalcopyrite, galena and Au. Analyses indicate the presence of Sb, Bi and Ag. A geochem. diagram of the deposits indicates that there are 2 phases of the ore formation process: at 375-500° and at 300-50°. The 1st phase is connected genetically with ancient granites. The 2nd phase is connected, supposedly, with neointrusions which, although not exposed near the deposits, are supposed to be present at some depth of the deposit. Proofs are presented that the ore formation of the 1st phase took place at a considerable depth (to 10 km.). The ore formation of the 2nd phase took place considerably higher (1.5-2.5 km.). It is supposed that between the 1st and 2nd phase there occurred an upward displacement of the massif to a height of 7-8 km.

W. R. Henn



YEFREMOV, G.M.

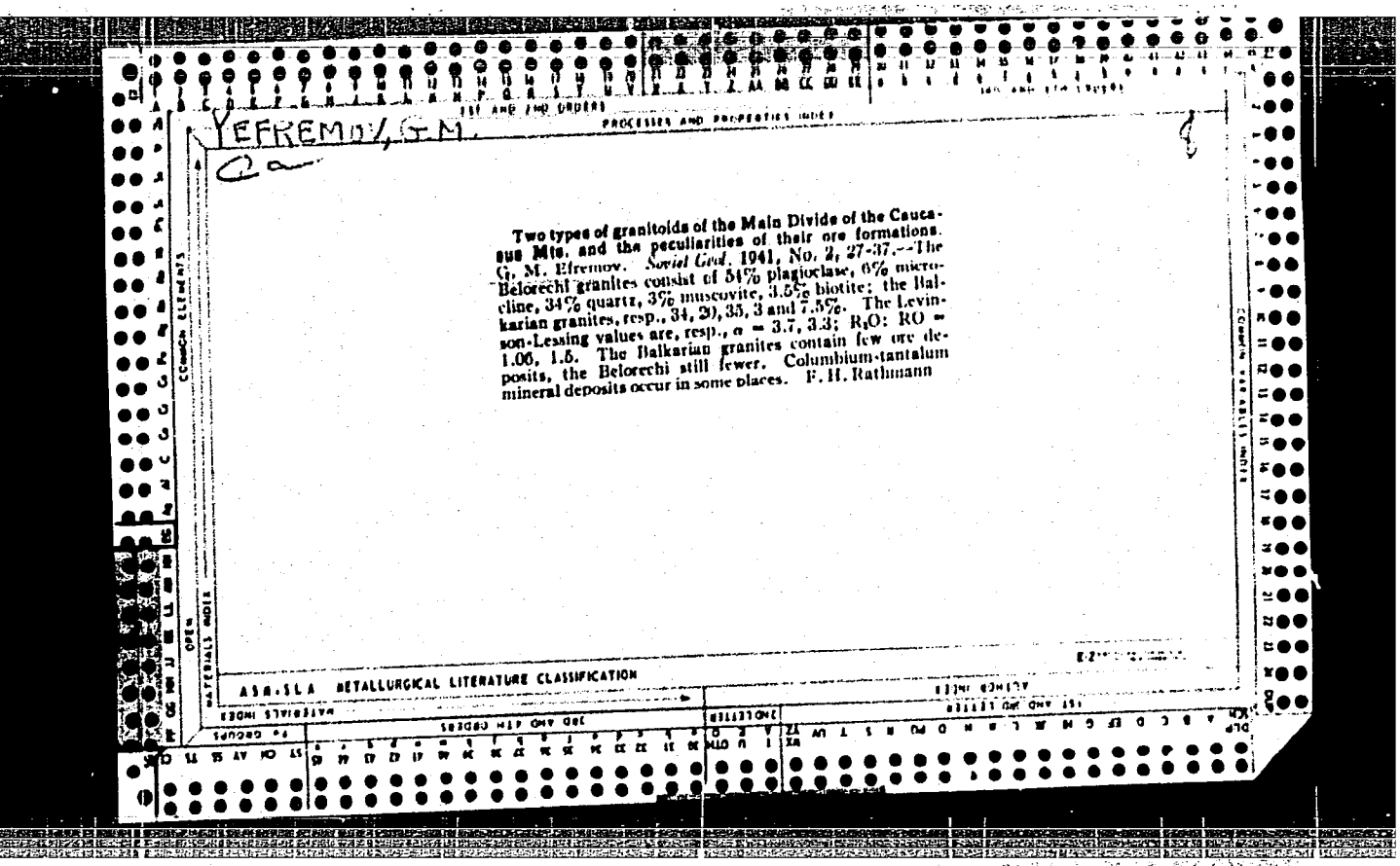
Barium in the Dshalan Kol deposits in northern Cauca-

sus. G. M. Efremov. *Mém. soc. russe minéral.* 68, 015 21(1939); *Khim. Referat. Zhur.* 1940, No. 6, 21-5

The deposits are situated on the northern slope of the main Caucasian ridge in the Karachevskii region. The barite veins were formed as the result of the filling up of the cracks in quartz-cerussite and quartz-chlorite schists of Pre-Jurassic age. The solns. which brought Ba are connected with the acid Paleozoic intrusions of the region. Besides Ba the veins contain also ankerite, siderite, aragonite, quartz, sulfides of Pb, Zn, Cu and Fe and the products of their transformation (limonite, malachite, azurite and cerussite). In zonal structures siderite is found in the peripheric parts of the vein, and barite in the central parts of the vein, i. e., siderite was sepd. before barite. A transformation of barite veins into siderite veins is observed. Barite occurs as prismatic crystals, less frequently as platy crystals, 0.3-1.5 cm. diam. occasionally up to 10 cm.). The colorless, sometimes slightly yellow, often transparent barite crystals contain no inclusions except pyrite, which is found very infrequently. The reserves are small. Transparent barite is important industrially as a possible source of optical raw material.

W. R. Hess

8



YEFREMOV, G. M.

Ca

Two types of granitoids of the Main Divide of the Caucasus Mts. and the peculiarities of their ore formations. G. M. Efremov. *Soviet Geol.* 1941, No. 2, 27-37.—The Belorechi granites consist of 54% plagioclase, 6% microcline, 34% quartz, 3% muscovite, 3.5% biotite; the Balkarian granites, resp., 34, 29, 35, 3 and 7.5%. The Levinson-Lessing values are, resp., $a = 3.7, 3.3$; $R_2O:RO =$ 1.06, 1.5. The Balkarian granites contain few ore deposits, the Belorechi still fewer. Columbium-tantalum mineral deposits occur in some places. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

YEFREMOV, G. M.

Yefremov, G. M. "The tectonic structure of the Northwestern Kavkhaz and the history of its formation," Trudy Novocherkas. politekhn. in-ta im. Ordzhonikidze, Vol. XVII, 1948, p. 25-32 - Bibliog: 7 items

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, no. 3, 1949)

YEFREMOV, G. M.

Yefremov, G. M. "The structure of Kholstinskiy lead-zinc deposit in the Northern Kavkhaz," Trudy Novocherkas, politekhn. in-ta im. Ordzhonikidze, Vol. XVII, 1948, p. 33-43 - Bibliog: 6 items

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, no. 3, 1949)

YEFREMOV, G. O.

20983 Yefremov, G. o. Predel' Noye potrebleniye kisloroda u yunoshey v svyazi s pokazatelyami ikh fizicheskay podgotcvlennost: Teoriya i praktika fiz kul'tury, 1949, vyp. 5, s. 352-59.

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949

YEFREMOV, Georgiy Osipovich; FAYNBOYM, I.B., red.; RAITIN, I.T., tekhn. red.

[Mathematical logic and calculating machines] Matematicheskaia logika i mashiny. Moskva, Izd-vo "Znanie," 1962. 43 p. (Novoe v zhizni, nauke, tekhnike. IX Seriia; Fizika i khimiia, no.10) (MIRA 15:7)

(Logic, Symbolic and mathematical)
(Electronic calculating machines)

YEFREMOV, Georgiy Osipovich; FAYNBO'IM, I.B., red.

[Algorithms] Algoritmy. Moskva, Znanie, 1964. 28 p. (Novoe v zhizni, nauke, tekhnike. IX Seriia: Fizika, matematika, astronomiia, no.23) (MIRA 17:12)

1. Zaveduyushchiy kafedroy matematiki Chuvashskogo pedagogicheskogo instituta, g.Cheboksary (for Yefremov).

YEFREMOV, G.P.

Develop technical training of roadworkers. Avt. dor. 21 no.12:23-24 D '58. (MIRA 12:1)

1.Zamestitel' nauchal'nika upravleniya kadrov i uchebnykh zavedeniy Minavtoshosdora RSFSR. (Roads) (Correspondence schools and courses)

YEFREMOV, G.V.

137-58-1-2145

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 292 (USSR)

AUTHORS: Yefremov, G. V., Galibin, V. A.

TITLE: On Thallium Colorimetry (K voprosu o kolorimetricheskom opredelenii talliya)

PERIODICAL: Uch. zap. LGU, 1957, Nr 211, pp 83-86

ABSTRACT: It is shown that determination of Tl by methyl red (I) requires decomposition of excess $NaNO_2$ which would decompose the I. As a result, the colored benzene layer becomes cloudy and this reflects upon the results of colorimetry. It is shown that at a Cl^- strength greater than 2 N urea does not reduce Tl because of the high stability of $TlCl_4^-$. To 4-5 cc of solution containing $\leq$ 50 γ Tl^+, 2 cc 10 percent $NaNO_2$ and 5 cc concentrated HCl is added (the normality of the solution at the moment of oxidation should be $\geq$ 3). After 5 min the excess oxidizer is decomposed by 5 cc urea. The volume of solution is brought to 100 cc, 2 cc 0.2 percent solution I is added, and the Tl is extracted by two equal amounts of benzene (25 cc total). The acidity of the solution at the moment of extraction is 0.45-0.5 N. The benzene layer is then subjected to colorimetry. It is found that fuchsin,

Card 1/2

137-58-1-2145

On Thallium Colorimetry

parafuchsin, aniline, blue, basic blue, cetoglaucine, cetocyanine, and chrome green do not form colored compounds with $TlCl_4^-$. Methyl green produces a reversible reaction. Malachite green, basic bright green, and turquoise blue are suited to the colorimetry of Tl.

V. P.

1. Thallium--Determination 2. Thallium--Colorimetric analysis 3. Colorimetry --Applications

Card 2/2

Yefizmo., G, V.

137-1957-12-25519

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 367 (USSR)

AUTHORS: Yefremov, G. V., Alekseyev, I. P.

TITLE: Coprecipitation of Thallium (III) with the Hydroxide of Tetravalent Manganese [Soosazhdeniye talliya (III) gidrookis'yu chetyrekhvalentnogo margantsa]

PERIODICAL: Uch. zap. LGU, 1957, Nr 211, pp 87-91

ABSTRACT: $MnSO_4$ is added to a solution of Tl^{3+} (if the concentration of Tl is greater than 1 γ/ml, a ten-fold amount of $MnSO_4$ will suffice, whereas at smaller Tl concentrations the amount of $MnSO_4$ is increased to 80-100 times), followed by 10 drops of 30 percent H_2O_2 solution; under constant stirring a 2N solution of NaOH is added dropwise until a methyl orange indicator shows that neutralization is reached; and then in sufficient quantity to precipitate the Mn and Tl. The solution is heated to a temperature of 70° in order to disperse the colloidal suspension of H_2MnO_3 formed and to obtain a clear solution. Three hours later the precipitate is filtered out, transferred into a beaker and dissolved by a few drops of HCl and H_2O_2. The solution is then evaporated in

Card 1/2

Co-sedimentation of Thallium (III) by the Hydroxide (cont.)

a hot water bath almost to dryness, in order to remove excess H_2O_2, and 5 ml of 6 N HCl are added to it, followed by 2 ml of a 10 percent $NaNO_3$. After 2-3 minutes a reddish-orange coloration appears and is made to disappear by a two-fold dilution of the solution with water. One ml of saturated urea solution is added, diluted to 100 ml, which is followed by an addition of 40 drops of 0.2 percent solution of methyl-violet. Complete removal of Tl from the solution, the total volume of C_6H_6 being 25 ml, is accomplished in three successive extractions. Intensity of the C_6H_6 coloring was measured on a photometer of FM type, equipped with an Nr 3 filter. Tl content is determined on a previously constructed calibration curve. The presence of Sb interferes with the determination of Tl.

Kh. Sh.

1. Thallium-Precipitation
2. Hydroxide of tetravalent manganese-Applications

Card 2/2

VASIL'YEV, Vladimir Vissarionovich; YEFREMOV, German Vasil'yevich; TIKHOMIROV, Vladimir Ivanovich; MORACHEVSKIY, Yu.V., prof., otv.red.; SHCHEMELEVA, Ye.V., red.; SEMENOVA, A.V., tekhn.red.

[Short course in analytical chemistry for biology students] Kratkii kurs analiticheskoi khimii dlia biologov. Izd-vo Leningr. univ., 1958. 296 p. (MIRA 12:2)
(Chemistry, Analytical)

AUTHORS: Yefremov, G. V., Hsu Chi-Ku SOV/54-58-3-19/19

TITLE: On the Method of the Colorimetric Determination of Thallium by Means of Methyl Violet (O metode kolorimetricheskogo opredeleniya talliya s metilfioletovym)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1958, Nr 3, pp 156-159 (USSR)

ABSTRACT: The authors used methyl violet for the determination of thallium in the concentrate obtained after the simultaneous precipitation of thallium together with tetravalent manganese hydroxide (Ref 5). The methyl violet methods suggested by various authors for the final determination of thallium exhibit differences in their details. For this reason in the present short note the separate methods of chemical preparation of the samples were subjected to an examination. It was shown that in the colorimetric determination the ions CNS^- and J^- have a disturbing influence. The ion $MoO-O_4^{2-}$ which floats at the boundary between water and the organic phase must be eliminated. The separation of antimony by precipitating it in the form of SbOCl is not recommended

Card 1/2

On the Method of the Colorimetric Determination of Thallium by Means of Methyl Violet

in the case of a low thallium content; neither is the application of sodium nitrate as oxidizing agent. The acid dissociation (kislotnoye razlozheniye) is regarded to be the most convenient method but it should be applied in the case of an obligatory removal of the excess acid only in water bath. All investigations were carried out by means of the thallium 204 tracer atoms. There are 2 tables and 14 references, 11 of which are Soviet.

SUBMITTED: January 2, 1958

Card 2/2

USCOMM-DC 60,724

SOV/156-58-4-23/49

AUTHORS: Morachevskiy, Yu. V., Yefremov, G. V., Нет Сай-ли

TITLE: The Separation of Thallium From Accompanying Elements by Coprecipitation With Silver Iodide (Otdeleniye talliya ot soputstvuyushchikh elementov soosazhdeniyem yego s iodidom serebra)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 706-709 (USSR)

ABSTRACT: In the present paper detailed investigations concerning conditions of the coprecipitation of microquantities of thallium with silver iodide under the simultaneous separation of the element from its accompanying elements were carried out. The complete coprecipitation of thallium depends on the pH-value of the solution and the ripening time of the precipitate. The maximum coprecipitation occurs at pH 2 and 3. Maintaining optimum conditions it is possible to obtain the quantitative coprecipitation of thallium with silver iodide from dilute solutions (0.1 γ Tl in 25 ml). The quantitative separation of microquantities of thallium from the accompanying elements chromium, mercury, antimony, gold and copper was determined.

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SOV/156-58-4-23/49

The Separation of Thallium From Accompanying Elements by Coprecipitation With Silver Iodide

By means of Sb^{124} it was shown that under optimum conditions for the quantitative coprecipitation of thallium no antimony is coprecipitated with silver iodide. In the presence of large quantities of mercury it is necessary to repeat the process as mercury is coprecipitated in large amounts with silver iodide. There are 4 tables and 9 references, 7 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii Leningradskogo gosudarstvennogo universiteta (Chair of Analytical Chemistry at the Leningrad State University)

SUBMITTED: February 17, 1958

Card 2/2

AUTHORS: Yefremov, G.V., Andreyeva, I.Yu. 54-10-2-12/16

TITLE: The Co-Precipitation of Thallium and Cadmium Sulfide (Soosazhdeniye talliya s sul'fidom kadmiya)

PERIODICAL: Vestnik Leningradskogo Universiteta, Seriya fiziki i khimii , 1958, Vol.10 , Nr 2 , pp. 117-121 (USSR)

ABSTRACT: I.P. Alimarin (Ref 1) and other authors showed that cadmium sulfide is a good collector for microgram quantities of thallium. In view of the quantities of thallium that are usually lost in production and because of the difference in the conditions of co-precipitation, the authors studied the co-precipitation of thallium with cadmium sulfide. Final determination was carried out according to the calorimetric method by the application of methyl violet after oxidation of the thallium by bromine water. Under prevailing conditions the ions $[CdBr_4]''$ and $[CdCl_4]''$ are formed, which, according to data supplied by N.T.Voskresenskaya (Ref 4) form compounds with vat dyes and thereby render the determination of thallium difficult. It was found by an investigation of this development that if up to 75 milligrams of cadmium are present, the influence exercised by the ion $[CdBr_4]''$ is so small that it is hardly

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manifested at all in results obtained, nor was thallium determination influenced in any way by the presence of the ion $[CdCl_4]^{"}$ under the same conditions. Average values of the precipitation percentage of thallium for different correlations of thallium, cadmium, and pH solution are given (table 1). It may be seen from this table that the highest co-precipitation percentage is found at pH 5-5,6. Both an increase and a reduction of pH, conditions otherwise remaining the same, leads to a reduction of the percentage. Precipitation of sulfide was, in the case of all previous experiments, carried out at a temperature of 70-80°. At lower temperatures precipitation is finely dispersed, and therefore co-precipitation of thallium increases. At low precipitation temperatures (20°) the coagulation of the precipitation is made difficult. For a long time it remains in the form of sol (table 3). In the case of repeated precipitation of cadmium sulfide thallium can practically be fully eliminated. The values obtained show that the co-precipitation of thallium with cadmium sulfide takes place mainly at the expense of surface adsorption. There are 7 tables, and 4 references, all of which are Soviet.

SUBMITTED: December 25, 1957

AVAILABLE: Library of Congress

Card 2/2

1. Thallium--Precipitation 2. Cadmium sulfide--Precipitation
3. Thallium--Determination 4. Cadmium sulfide--Determination
5. Colorimetry--Applications

YEFREMOV, G.V.; SYUY CHZHI-GU [Hsiu Chih-ku]

Colorimetric determination of thallium with methyl violet [with summary in English]. Vest. LGU 13 no.16:156-159 '58. (MIRA 11:11)

(Thallium--Analysis) (Colorimetry) (Methyl violet)

YEFREMOV, G. V.

PHASE I BOOK EXPLOITATION SOV/2946

5(2)

Leningrad. Universitet

Voprosy khimii (Problems in Chemistry) [Leningrad] Izd-vo Leningradskogo univ., 1959. 160 p. (Series: Its: Uchenyye zapiski, no. 272) (Series: Leningrad. Universitet. Khimicheskiy fakultet. Uchenyye zapiski. Seriya khimicheskikh nauk, vyp. 18) 1,600 copies printed.

Resp. Ed.: A. G. Morachevskiy; Ed.: Ye. V. Shchemeleva; Tech. Ed.: S. D. Vodolagina.

PURPOSE: This book is intended for chemists in research and industry as well as for teachers and students in chemical vuzes.

COVERAGE: This collection of eighteen articles on various branches of chemistry, mainly physical and analytical, was compiled on the basis of experimental research by the Chemistry Department of Leningrad University. The articles deal chiefly with methods of isolating rare earths in pure form and identifying them. No personalities are mentioned. References accompany individual articles.

TABLE OF CONTENTS:

5(2) SOV/54-59-1-20/25

AUTHORS: Yefremov, G. V., Leont'yeva, S. A.

TITLE: Co-precipitation of Thallium With Zinc Sulphide (Soosazhdeniye talliya s sul'fidom tsinka)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1959, Nr 1, pp 141-144 (USSR)

ABSTRACT: In the present paper the authors report on co-precipitation of thallium with zinc sulphide as a collector in dependence on various factors. Precipitation of thallium occurred at various pH-values (2.6, 4.0, 5.6) of the buffer solution. A description of the precipitation course is given. Thallium in the precipitate is determined by the colorimetric methyl violet method (Refs 5-8). Table 1 shows the dependence of the quantity of thallium precipitated (in %) on the pH-value and on the various ratios of thallium with zinc. Under the same conditions stated in table 1, table 2 gives an additional description of the dependence of the precipitated thallium quantity on the maturing time of the precipitate. The influence exerted by the dilution of the solution (Table 3) becomes clearly evident only after a fivefold dilution. Investigations showed one of the primary conditions for

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the quantitative precipitation of thallium to be a two or three times repeated introduction of additional zinc sulphide in the solutions. The indications given here concerning the conditions of a quantitative precipitation of thallium may be utilized in the analysis of metallic zinc, zinc ores and waste products resulting from the production of zinc, for the determination of a microcontent of thallium. There are 6 tables and 8 Soviet references.

SUBMITTED: June 10, 1958

5(2)
AUTHORS: Yefremov, G. V., Kim Gun On, Shiryayev, B. V.

SOV/54-59-2-23/24

TITLE: Co-precipitation of Thallium With Copper and Mercury Iodides (Soosazhdeniye talliya s iodidami medi i rtuti)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1959, Nr 2, pp 152-155 (USSR)

ABSTRACT: The co-precipitation proved to be one of the most promising enrichment or concentration methods of separating thallium from materials with a very low content of thallium. Poorly soluble metal iodides are used as collectors for the thallium. Similar investigations with copper and silver iodides are indicated in publications (Refs 1-2). Investigations with copper and mercury iodides have not yet been carried out. This method tested in this paper with the monovalent metal iodides of the mentioned metals, proved to be particularly suitable for investigations of mercury-containing materials on one hand; on the other hand, the presence of copper does not disturb the final determination of thallium by the colorimetric methyl violet method. In order to prevent the formation of free iodine in the copper iodide solution, the presence of which disturbs the precipitation of

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thallium, a reducer was introduced in the form of fresh-made sulphuric acid. To investigate the optimum conditions for a complete precipitation of thallium, the copper iodide content and the pH-value of the solution were varied in a solution volume of 25 ml at 18° and a thallium content of 50 γ Th. The results of this investigation are compiled in a table. The optimum conditions were attained at a pH-value of 2.9 and a thallium-copper ratio of 1:200. At an increase in temperature, the precipitation of thallium became worse. Investigations with thinner solutions also yielded worse results. The precipitation mechanism is considered as a surface adsorption of the thallium on the copper iodide. Besides, the thallium is determined in some natural compounds by means of this method. For the precipitation of thallium with mercury iodide, an excess of potassium iodide had to be introduced to stabilize the Hg_2J_2; in this way, it was possible to precipitate 95% of the thallium from 20 ml of solution (0.001 mol/l KJ excess) with 25 γ thallium at a pH-value of 3.3 - 4 and a mercury-thallium ratio of 1:1300. A further excess in KJ reduced the

yield. Tests with a boiling solution yielded worse results. The precipitation mechanism Hg_2J_2 - Th is also considered as a surface adsorption. There are 1 table and 5 Soviet references.

SUBMITTED: December 22, 1958

SOV/156-59-2-18/48

5(2)

AUTHORS: Morachevskiy, G. V., Yefremov, G. V., Hsü Chi-ku

TITLE: On the Co-precipitation of Thallium With Lead Sulphate(O soosazhdenii talliya s sul'fatom svintsa)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 2, pp 293-295 (USSR)

ABSTRACT: The quantitative separation of thallium from lead is investigated in the case the latter is precipitated as sulphate. The separation was investigated by means of Tl^{214}. Table 1 shows that $PbSO_4$ carries down a considerable amount of thallium which is probably due to a double salt $PbSO_4 \cdot Tl_2SO_4 \cdot nH_2O$. Experiments showed that in the case of high concentrations of K^+-(or NH_4^+-)-ions in the solution the aforementioned formation of a double salt is avoided. A method of analysis is worked out on this basis. Lead is precipitated in the presence of potassium nitrate or potassium sulphate, thallium is photometrically determined by means of methyl violet. Table 2 shows the data of the analytical determination of thallium in galenite and the comparison with the results of spectrum

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SOV/156-59-2-18/48

On the Co-precipitation of Thallium With Lead Sulphate

analysis carried out by A. N. Murav'yeva in the VSYeGYeI (Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut Ministerstva geologii) (All-Union Scientific Geological Research Institute of the Ministry of Geology)). The authors thank V. I. Grebenshchikova for valuable advice. There are 2 tables and 14 references, 10 of which are Soviet.

PRESENTED BY: Kafedra analiticheskoy khimii Leningradskogo gosudarstvennogo universiteta im. A. A. Zhdanova (Chair of Analytical Chemistry, Leningrad State University imeni A. A. Zhdanov)

SUBMITTED: October 13, 1958

Card 2/2

YEFREMOV, G.V.; KIM GUN ON; SHIHYAYEV, B.V.

Coprecipitation of thallium with copper and mercury iodides. Vest. LGU 14 no.10:152-155 '59. (MIRA 12:6)
(Thallium) (Iodides)

YEFREMOV, G.V.; BLOKHIN, A.N.

Simplified method of determining small amounts of thallium in ores and industrial waste products. Vest. LGU 14 no.22:146-151 '59. (MIRA 13:11)

(Thallium--Analysis)

YEFREMOV, G.V.; GONCHAROV, A.V.

Coprecipitation of thallium with iron hydroxide. Uch.zap. LGU no.272:94-98 '59. (MIRA 13:1)
(Thallium) (Iron hydroxide)

YEFREMOV, G.V.; STOLYAROV, K.P.

Photometric determination of thallium in the ultraviolet region of the spectrum. Uch.zap.LGU no.272:99-104 '59. (MIRA 13:1)

(Thallium--Spectra)

MORACHEVSKIY, Yu.V.; YEFREMOV, G.V.

Analytic determination of thallium in industrial ores and wastes. Uch.zap.LGU no.272:105-111 '59. (MIRA 13:1)
(Thallium--Analysis)

YEVREMOV, G.V.; VETOSHKINA, A.F.

On the separation of thallium by means of radial paper chromatography. Uch. zap. LGU no.297:53-57 '60. (MIRA 13:11)
(Thallium)

YEFREMOV, G.V.; KARYAGINA, N.Ye.

Coprecipitation of thallium with a urea complex of lead. Uch. zap. LGU no.297:71-76 '60. (MIRA 13:11)
(Thallium) (Lead compounds)

S/054/61/000/002/005/005
B 101/B207

AUTHORS: Morachevskiy, Yu. V. (Deceased), Yefremov G. V., Hsü Chih-ku

TITLE: Concentration of thallium by coprecipitation with difficultly soluble iodides

PERIODICAL: Leningradskiy Universitet. Vestnik. Seriya fiziki i khimii, no. 2, 1961, 137 - 141

TEXT: This is a condensed reproduction of a report delivered to the sektsiya obshchey khimii, Leningr. otdelenive khim. o-va im. Mendeleyeva (Section of General Chemistry, Leningrad Department of the Chemical Society imeni Mendeleyev) on January 22, 1959. This study dealt with the concentration of thallium for its colorimetric analysis by means of methyl violet and its separation from elements disturbing the colorimetric analysis. The coprecipitation of Tl with the iodides of Ag, Pb, Bi, and monovalent Cu and Hg was investigated. The precipitation was checked by means of radioactive indicators. The data for Ag have already been

Card 1/5

Concentration of thallium by ...

published (Ref. 1: Yu. V. Morachevskiy et al., Nauchn. dokl. vysshey shkoly SSSR, Khimiya i khim. tekhnologiya, no. 4, 706 - 709, 1958). The following was found to hold for the other coprecipitants: 1) At pH 5 - 6, 99% of Tl is coprecipitated with Pb. The fact that lead iodide forms complexes with organic reagents, renders the use of Pb difficult. 2) Coprecipitation with Cu_2I_2 showed that the precipitate contained 99.5% of Tl. Also in this case, complexing exerts a disturbing effect. 3) Coprecipitation with Bi is highly dependent on the pH. It is quantitative at pH 8 - 9. 4) Coprecipitation with Hg_2I_2 requires a large Hg_2I_2 excess. The desorption of Tl from the precipitate, observed on standing, was studied. Oxidation was found to occur at low pH: $2I'+4H^{+}+O_2 \rightleftarrows I_2+2H_2O$.

$Tl^{+}+I_2+2I'=TlI'_4$. This was proved by the effect of reducing (sodium sulfite, hydroxylamine) and oxidizing (bromine water) reagents. Coprecipitation takes place by adsorption of Tl on the surface of the precipitate. Table 1 lists experimental data. In view of the tendency of Pb^{2+},

S/054/61/000/002/005/005
B101/B207

Concentration of thallium by ...

Cu^{2+}, Bi^{3+} to form complex compounds in the presence of Trilon B and of Pb^{2+} and Cu^{2+} to form complex compounds with citrates, AgI is the best collector for Tl. Separation of Tl from Au^{3+}, Hg^{2+}, Cr^{3+}, Cu^{2+}, Sb^{3+} by means of AgI yielded good results. To determine Tl in plumbiferous and non plumbiferous substances, the following suggestion is made, decomposition of the weighed portion by heating with concentrated HCl, addition of HNO_3, evaporation, and filtering. Evaporation of the filtrate, addition of NaOH up to pH = 4 (at high Fe content) or pH = 9 (at low Fe content), addition of Trilon B (at pH < 6) or sodium citrate (at pH > 7), addition of Na_2SO_3, KI and $AgNO_3$. Filtering and washing with KI solution. Dissolution of the precipitate in hot HNO_3 (1:1). Removal of HNO_3 and I_2 by evaporation. Oxidation by dropwise addition of H_2O_2, addition of NH_4Cl and Br_2 solutions, heating, extraction by phenol addition, methyl violet, and benzene. Colorimetric analysis of Tl in the organic phase in an ФЭК-М

Card 3/5

S/054/61/000/002/005/005
B101/B207

Concentration of thallium by ...

(FEK-M) apparatus. Separation from lead is effected by precipitation as $PbSO_4$ after dissolution of the weighed portion. This method was checked: 1) with thallium-free nickel ore, to which 20μg of Tl was added. The mean error was -9.3%; 2) with cobalt concentrate containing Tl: mean error -9.1%. This method can be applied up to a Tl content of at least 5.10^{-4}%. There are 3 tables and 2 Soviet-bloc-references.

Table 1: Solubility of carriers and coprecipitation of Tl.

Card 4/5

MORACHEVSKIY, Yu.V. [deceased]; YEFREMOV, G.V.; SYUY CHZHI-GU [Hsü Chih-ku]

Concentration of thallium by coprecipitation with poorly soluble iodides. Vest.LGU 16 no.10:137-141 '61. (MIRA 14:5)
(Thallium—Analysis) (Iodides)

YEFREMOV, G.V.; CHAYKINA, N.I.

Concentrating silver, indium, and thallium by coprecipitation with copper diethyldithiocarbamate. Vest. LGU 17 no.16:151-153 '62. (MIRA 15:9)

(Urea) (Metals--Analysis)

YEFREMOV, G.V.; ZVEREVA, M.N.; TSEDEVSUREN, TS.

Separation of thallium from element impurities on an anion exchanger. Zav.lab. 28 no.2:159-161 '62. (MIRA 15:3)

1. Leningradskiy gosudarstvennyy universitet.
(Thallium—Analysis) (Ion exchange)

YEFREMOV, G.V.; DYATLOVA, V.V.

Applicability of Schöniger's method in paper chromatography. (MIRA 15:5)
Vest.LGU 17 no.10:159-160 '62.
(Chromatographic analysis)

CHAYKINA, N.I.; YEFREMOV, G.V.

Extraction separation of silver, thallium, and indium from iron and manganese. Vest. LGU 18 no.22:155-153 '63.
(MIRA 17:1)

ANDREYEVA, L. Yu.; YEFREMOV, G. V.

Some chemical properties of boron phosphide. Vest. LGU 19 no.10: 130-132 '64.

Determination of the chemical composition of boron phosphide. Vest. LGU 19 no.10:132-134 '64.

Determination of free boron and phosphorus in boron phosphide. Ibid.:135-137.

(MIRA 17:7)

ACCESSION NR: AP4041839 S/0054/64/000/002/0130/0132

AUTHOR: Andreyeva, I. Yu., Yefremov, G. V.

TITLE: Certain chemical properties of boron phosphide

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 2, 1964, 130-132

TOPIC TAGS: boron, boron phosphide, boron phosphide property, boron phosphide solubility, boron phosphide oxidation, boron phosphide chlorination, boron phosphide stability

ABSTRACT: A study of the behavior of boron phosphide in acids, oxidizing media, oxygen, nitrogen, and chlorine has shown that its reactivity at 102—288C is highly dependent upon the grain size: coarse-grained boron phosphide is much more chemically stable than fine-grained; at room temperature it does not react with acids at all. In boiling acids and liquid oxidizing media, coarse-grained boron phosphide dissolves at a much lower rate than fine-grained. The latter begins to oxidize in air at 550—560C, the former at 740—750C. At 800C, boron phosphide, regardless of grain size, trans-

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ACCESSION NR: AP4041839

forms into a white residue. This residue contains 9.0% boron and 26.9% phosphorus, with silicon, magnesium, and aluminum impurities, and consists of BPO_4. Boron phosphide oxidized in oxygen behaves in the same manner. In nitrogen, the fine-grained phosphide dissociates at 800—810C, the coarse-grained at 880—890C, with precipitation of red phosphorus. Boron phosphide reacts with chlorine at 550—560C or 600—610C, again depending on grain size. The reaction proceeds rapidly and yields boron and phosphorus chlorides and a small quantity of white residue consisting of BPO_4. Orig. art. has: 2 tables.

ASSOCIATION: none

SUBMITTED: 12Dec62 ATD PRESS: 3047 ENCL: 00

SUB CODE: OC NO REF SOV: 000 OTHER: 003

Card 2/2

ACCESSION NR: AP4041840 S/0054/64/000/002/0132/0134

AUTHOR: Andreyeva, I. Yu.; Yefremov, G. V.

TITLE: Determination of boron-phosphide chemical composition

SOURCE: Leningrad. Universitet. Vestnik, Seriya fiziki i khimii, no. 2, 1964, 132-134

TOPIC TAGS: boron phosphide, boron phosphide chemical composition, chemical composition determination, boron phosphide analysis, chemical analysis

ABSTRACT: The following method for the chemical analysis of boron phosphide has been suggested. The boron phosphide is chlorinated at 560C (fine grained) or 610C (coarse grained) and the boron and phosphor chlorides obtained are absorbed in water. The remainder, consisting of BPO_4, is converted into soluble form by fusing it with a mixture of Na_2CO_3 and $NaNO_3$. The boron and phosphorus in the obtained solutions are then determined by conventional methods. The boron and phosphorus contents in coarse-grained boron phosphide determined by

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ACCESSION NR: AP4041840

the above method varied from 25.0 to 26.9% and from 73.2 to 75.3%, respectively. Corresponding values for fine-grained phosphide varied from 25.1 to 26.6% and from 73.0 to 74.4%. The stoichiometric content is 25.9% boron and 74.1% phosphorus. Orig. art. has: 2 tables.

ASSOCIATION: none

SUBMITTED: 12Dec62 ATD PRESS: 3069 ENCL: 00

SUB CODE: IC, GC NO REF SOV: 001 OTHER: 008

Card 2/2

L 36255-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/GS
ACCESSION NR: AT5007808 S/0000/64/000/000/0022/0029

15
B+1

AUTHOR: Chaykina, N. I.; Yefremov, G. V.

TITLE: Chromatographic separation of microgram amounts of indium from large percentages of manganese and iron

SOURCE: Leningrad. Universitet. Metody kolichestvennogo opredeleniya elementov (Methods for the quantitative determination of elements). Leningrad, Izd-vo Leningr. univ., 1964, 22-29

TOPIC TAGS: indium separation, column chromatography, ore analysis, iron analysis, cation exchange resin, anion exchange resin, manganese ore

ABSTRACT: Methods have been developed for separating indium in microgram amounts from large quantities of manganese and iron in manganese ore by ion exchange. The separation was studied with model mixtures labeled with indium-114 on the cation exchange resin KU-2 and with model blends and ore concentrates on the anion exchange resin EDE-10P. Best results in the separation of indium on the hydrogen form of KU-2 were obtained by eluting indium before manganese with 0.4-0.5 M hydrochloric acid, i.e., under conditions favoring the formation of anionic indium complexes. The method, however, does not give sharp separations in the presence of large amounts of Mn or Fe, and it is limited by the small adsorption

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L 36255-65
ACCESSION NR: AT5007808

capacity of the resin for Mn under experimental conditions. Better separations were achieved by adsorption of In as $InCl_4^-$ from 4 M hydrochloric acid solutions on the Cl form of the anionic resin EDE-10P, permitting separation of $1 \cdot 10^{-7}$-$1 \cdot 10^{-5}$ g In from 3.2 g Mn and 0.16 g Fe, and by elution of In with water. Addition of 10 µg indium-114 to 5 g ore and separation on EDE-10P gave recoveries of 9.91-10.18 µg indium, no detectable contamination by manganese, and very small admixtures of iron which did not interfere with the spectroscopic determination of indium. Orig. art. has: 7 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 28Sep64 ENCL: 00 SUB CODE: MM, GC

NO REF SOV: 004 OTHER: 002

Card 2/2

L 36254-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG/GS
ACCESSION NR: AT5007809 S/0000/64/000/000/0030/0037

AUTHOR: Chaykina, N. I.; Yefremov, G. V.

TITLE: Chromatographic separation of microgram amounts of silver and thallium from large percentages of manganese and iron

SOURCE: Leningrad. Universitet. Metody kolichestvennogo opredeleniya elementov (Methods for the quantitative determination of elements). Leningrad, Izd-vo Leningr. univ., 1964, 30-37

TOPIC TAGS: silver separation, thallium separation, manganese ore, ore analysis, iron analysis, column chromatography, cation exchange resin, anion exchange resin

ABSTRACT: Methods have been developed for separating microgram quantities of silver and thallium from large amounts of manganese and iron in manganese ores by ion exchange. The separation was studied with model blends and manganese ores labeled with thallium-204 and silver-110 on cationic resin KU-2 and anionic resin EDE-10P. As shown previously for indium, separation of silver or thallium by elution before manganese on the cationic resin is limited, particularly because of the relatively small adsorption capacity of the resin for manganese. Satisfactory separations were obtained by adsorption of the anionic form of thallium III and of

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ACCESSION NR: AT5007809

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the chloride complex of silver on the anionic resin EDE-101, and by elution of silver with 3 M ammonia and of thallium with water. Microgram amounts of thallium can be eluted nearly quantitatively with water, whereas elution with nitric acid is required if milligram amounts of Tl are present. The method was used to separate 20 μg Tl + In and 10μ g Ag from 5 g manganese ore and for the spectroscopic determination of thallium, silver and indium in the eluate. Orig. art. has: 4 figures and 4 tables.

ASSOCIATION: none

SUBMITTED: 28Sep64 ENCL: 00 SUB CODE: MM, GC

NO REF SOV: 006 OTHER: 001

Card 2/2 JO

L 32671-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG/GD

ACC NR: AT6013572 (A) SOURCE CODE: UR/0000/65/000/000/0429/0432

47
B+1

AUTHOR: Yefremov, G. V.; Andreyeva, I. Yu.

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TITLE: About some chemical properties and determination of composition of the boron phosphide 27

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Vysokotemperaturnyye neorganicheskiye soyedineniya (High temperature inorganic compounds). Kiev, Naukova dumka, 1965, 429-432

TOPIC TAGS: boron compound, solubility, phosphide, phosphorus, CHEMICAL STABILITY, OXIDATION, CHEMICAL DECOMPOSITION

ABSTRACT: Solubility in HNO_3, H_2SO_4, HCl, B_2 saturated KBr, NaOH, $H_2C_2O_4$, $H_4C_4H_4O_6$, $H_3C_6H_5O_7$, H_2O_2, and mixtures thereof in various concentrations was studied for fine and coarse boron phosphide crystals. Oxidation and decomposition in both nitrogen and chlorine streams was investigated at 500°-800°C. It was found that the chemical stability of boron phosphide depends upon crystal size. Accordingly, course boron phosphide crystals were found to be insoluble in either of the individual solvents or mixtures thereof while fine crystals were, generally, partially soluble in those solvents. In air or oxygen stream, boron phosphide oxidized to BPO_4. The oxidation occured at 550°-

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-560°C for fine crystals and at 740°-750°C for coarse crystals and in both cases oxidation was rapid at 800°C. In the nitrogen stream, the decomposition into boron and phosphorus occured at 800°-810°C for fine crystals and at 800°-890°C for coarse crystals. Fine and coarse crystals of boron phosphide reacted with chlorine at 550°-560°C and 600°-610°C, respectively. The composition of boron phosphide is shown in a table. Orig. art. has: 2 tables.

SUB CODE: 07 / SUBM DATE: 03Jul65/ OTH REF: 002

Card 2/2 BLC

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[Design and repair of vessels lacking self-propulsion] Ustroistvo i remont nesamokhodnykh sudov. Moskva, Izd-vo "Rechnoi transport," 1954. 247 p. (MIRA 8:4)
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BOGDANOV, Boris Vladimirovich, inzh.; GALKOVSKAYA, Mariya Grigor'yevna, kand. tekhn.nauk; YEFREMOV, G.V., retsenzent; BOGDANOV, A.P., red.; SHLENNIKOVA, Z.V., red. izd-va; BODROVA, V.A., tekhn.red.

[Sectional barge trains for propulsion by pushing] Sektsionnye sostavy dlia vozhdeniia sposobom tolkaniia. Moskva, Izd-vo "Rechnoi transport," 1961. 144 p. (MIRA 15:2)
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